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GB A 2019463	GB 1311483	GB 0339480
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(58) Field of search
D1S
B8R
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B65H

(54) Fabric folding machine

(57) A fabric folding machine has a fabric supply reel 2, a plurality of cutters 5, representing a retractable high speed cutting unit, for cutting the fabric into a number of branches and folding boxes 7 and take up reels 3 for respective branches. Fabric leaving the reels 2 is slit longitudinally and the slit branches produced are folded along at least one longitudinally extending fold line in the boxes 7 before being taken up by respective reels 3. Fibre filling units 6 supply fibre infill to respective branches prior to folding. The folded fabric may be used for the production of swabs, the fibre infill increasing the absorbency of the swabs. The fabric is guided by rollers 4. Tracking controls and guide rollers are provided to guide the fabric accurately from supply to take-up.

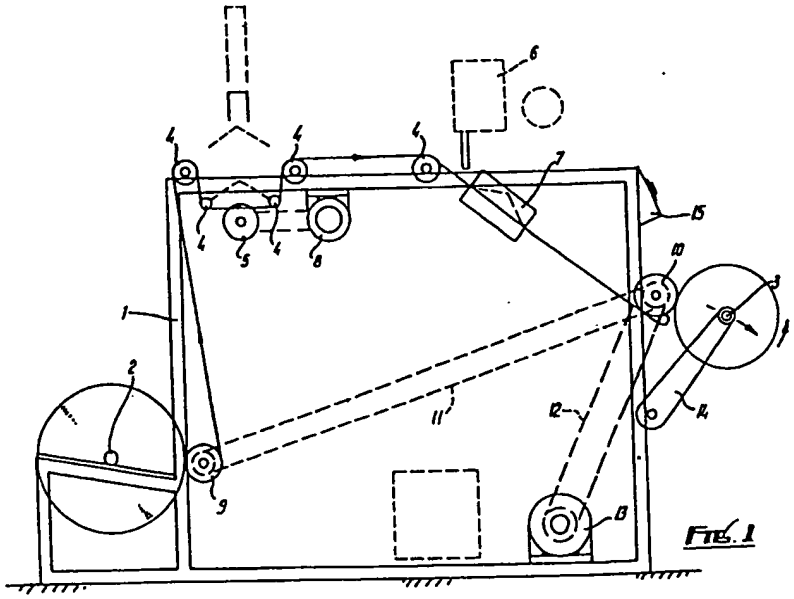

FIG. 1

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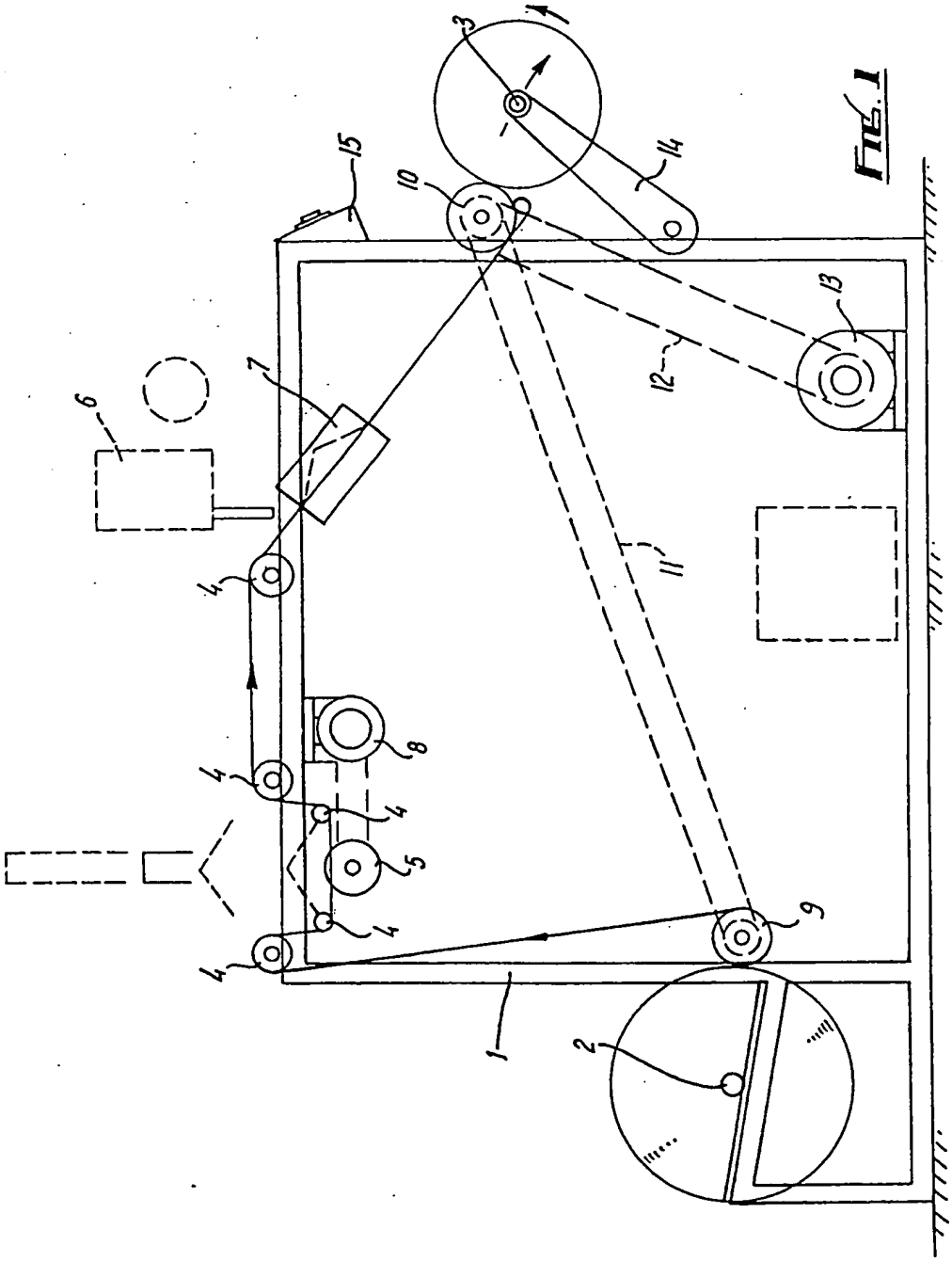
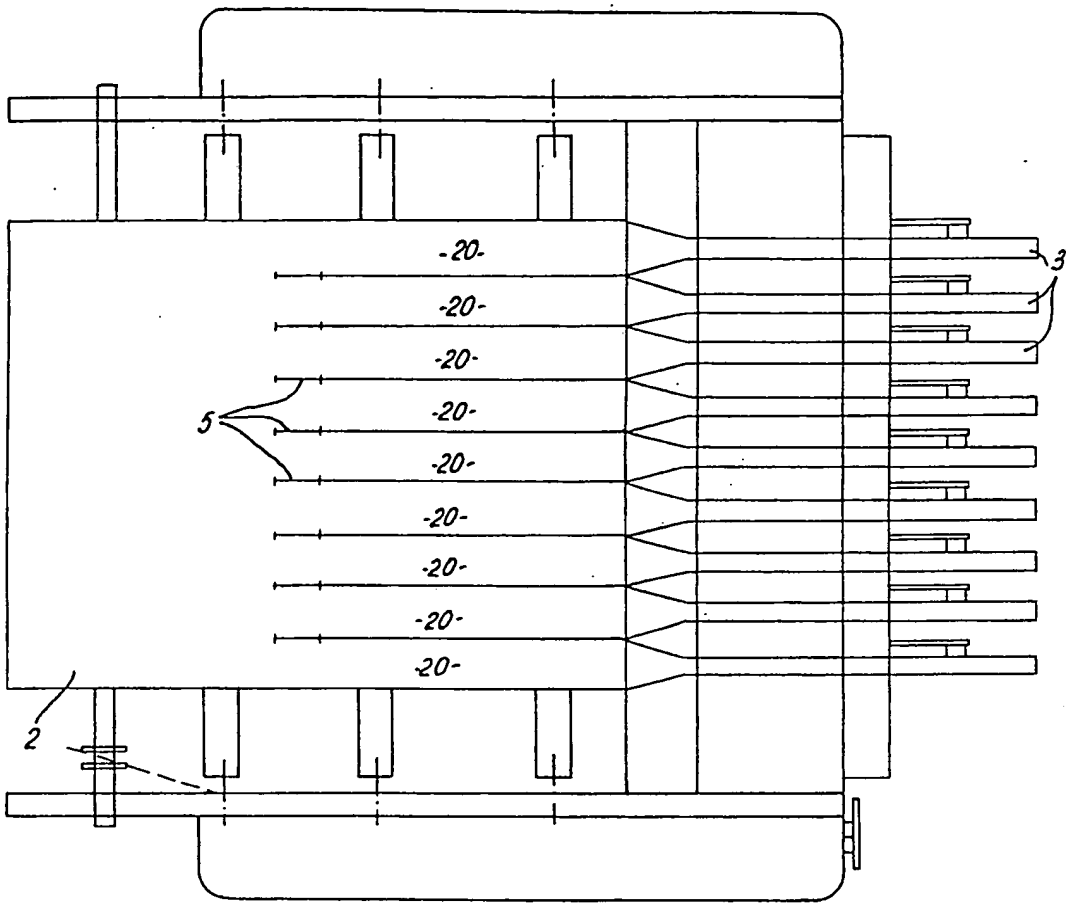
The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.



Фиг. 1



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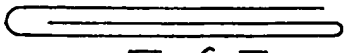

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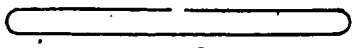

Фиг. 3б

SPECIFICATION

Fabric folding machine

The present invention relates to a fabric folding machine.

According to the present invention, there is provided a fabric folding machine comprising means for supplying fabric to be folded, means for producing at least one slit in the fabric extending in the longitudinal direction of the fabric whereby to produce at least two longitudinally extending branches of the material, means for folding each branch along at least one longitudinally extending fold line and means for receiving each folded branch.

In a preferred embodiment of the invention, the means for supplying fabric may comprise a reel upon which the fabric is wound, and the means for receiving may comprise further reels upon which respective folded branches of fabric are wound. The means for producing the at least one slit may comprise a retractable high speed cutting unit having a number of cutting wheels appropriate to the number of slits to be made. The means for folding may comprise a folding box for each branch which may fold that branch to provide three layers of superposed fabric of substantially equal lateral extent. Prior to folding, a fibre filling unit may be provided for each branch to increase the fibre bulk and therefore the aborbency of the respective branch. Various guide rollers and tracking controls are provided to guide the fabric accurately for supply to take up.

In order that the invention may be more clearly understood, one embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings in which:–

Figure 1 is a diagrammatic side elevational view of a fabric folding machine,

Figure 2 is a diagrammatic plan view of the foling machine of Fig. 1, and

Figure 3a and 3b show cross sections of two possible forms of folded fabric produced on the machine of Figs. 1 and 2.

Referring to the drawings, the folding machine comprises a frame 1. The frame supports a supply reel 2, on which the fabric to be folded is stored and from which it is drawn, and a plurality of take up reels 3, on which folded fabric is wound, are mounted on the frame 1. Also mounted on the frame 1, between the reels 2 and 3, are various fabric guide rollers 4, a plurality of cutters 5 forming part of a retractable high speed cutting unit, a plurality of fibre filling units 6, and a plurality of folding boxes 7. The cutters 5 are driven by an electric motor 8 and the reels 2 and 3 are friction driven by rollers 9 and 10. These rollers 9 and 10 are driven through drive belts 11 and 12 from a main electric motor drive 13 controller through a frequency inverter control. To accommodate the progressively increasing diameter of the folded fabric on reels 3, those reels 3 are mounted on respective arms 14 which are in turn pivotally mounted on the frame 1. A control panel is provided at 15.

The machine operates as follows. After leaving the supply reel 2, the fabric passes over guide rollers and is slit by the eight cutting wheels 5 into nine branches 20. The branches 20 are folded by respective folding boxes 7 so that the width of each branch is effectively divided by three. Cross sections through two forms of folded branch respectively called tri-folded and di-folded are shown in Figs. 3a and 3b. Prior to folding, fibre infill is deposited on the fabric branches by means of respective fibre filling units 6 so that, when the fabric branches are folded, the fibre infill is trapped between the folded layers. After folding each folded branch is wound onto its own take up reel 3. The folded fabric may be used for the production of swabs, the fibre infill increasing the absorbency of the swabs.

It will be appreciated that the above embodiment has been described by way of example only and that many variations are possible without departing from the scope of the invention.

CLAIMS

1. A fabric folding machine comprising means for supplying fabric to be folded, means for producing at least one slit in the fabric extending in the longitudinal direction of the fabric whereby to produce at least two longitudinally extending branches of the material, means for folding each branch along at least one longitudinally extending fold line and means for receiving each folded branch.

2. A fabric folding machine as claimed in claim 1, in which the means for producing the at least one slit comprises a retractable high speed cutting unit having a number of cutting wheels corresponding to the number of slits to be made.

3. A fabric folding machine as claimed in claim 1 or 2, in which the means for folding comprises a folding box for each branch which folds that branch to provide three layers of superposed fabric of substantially equal lateral extent.

4. A fabric folding machine as claimed in claim 1, 2, or 3, in which a fibre filling unit is provided for each branch upstream of the respective folding box to increase the fibre bulk and therefore the absorbency of the respective branch.

5. A fabric folding machine as claimed in claim 1, in which the means for supplying fabric comprises a reel upon which the fabric may be wound.

6. A fabric folding machine as claimed in any preceding claim, in which the means for receiving comprises further reels upon which

respective folded branches of fabric are wound.

7. A fabric folding machine as claimed in any preceding claim, in which guide rollers and tracking controls are provided to guide the fabric accurately from supply to take up.

8. A fabric folding machine substantially as hereinbefore described with reference to the accompanying drawings.

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